

the vessel must satisfy the Commandant, U.S. Coast Guard.

PART 85 [RESERVED]

PART 86—ANNEX III: TECHNICAL DETAILS OF SOUND SIGNAL APPLIANCES

Sec.

86.01 Whistles.

86.02 Bell or Gong.

86.03 Approval. [Reserved]

AUTHORITY: Sec. 303, Pub. L. 108-293, 118 Stat. 1042 (33 U.S.C. 2071); Department of Homeland Security Delegation No. 0170.1.

SOURCE: 79 FR 37924, July 2, 2014, unless otherwise noted.

§ 86.01 Whistles.

(a) *Frequencies and range of audibility.* The fundamental frequency of the signal shall lie within the range 70–700 Hz. The range of audibility of the signal from a whistle shall be determined by those frequencies, which may include the fundamental and/or one or more higher frequencies, which lie within the range 180–700 Hz ($\pm 1\%$) for a vessel of 20 meters or more in length, or 180–2100 Hz ($\pm 1\%$) for a vessel of less than 20 meters in length and which provide the sound pressure levels specified in paragraph (c) of this section.

(b) *Limits of fundamental frequencies.* To ensure a wide variety of whistle characteristics, the fundamental fre-

quency of a whistle shall be between the following limits:

(i) 70–200 Hz, for a vessel 200 meters or more in length.

(ii) 130–350 Hz, for a vessel 75 meters but less than 200 meters in length.

(iii) 250–700 Hz, for a vessel less than 75 meters in length.

(c) *Sound signal intensity and range of audibility.*

A whistle fitted in a vessel shall provide, in the direction of maximum intensity of the whistle and at a distance of 1 meter from it, a sound pressure level in at least one $\frac{1}{3}$ rd-octave band within the range of frequencies 180–700 Hz ($\pm 1\%$) for a vessel of 20 meters or more in length, or 180–2100 Hz ($\pm 1\%$) for a vessel of less than 20 meters in length, of not less than the appropriate figure given in Table 86.01(c) of this section. The range of audibility in Table 86.01(c) is the approximate range at which a whistle may be heard on its forward axis with 90% probability in conditions of still air on board a vessel having average background noise level at the listening posts (taken to be 68 dB in the octave band centered on 250 Hz and 63 dB in the octave band centered on 500 Hz). It is shown for information purposes only. In practice, the range at which a whistle may be heard is extremely variable and depends critically on weather conditions; the values given can be regarded as typical but under conditions of strong wind or high ambient noise level at the listening post the range may be reduced.

TABLE 86.01(c)

Length of vessel in meters	$\frac{1}{3}$ rd-octave band level at 1 meter in dB referred to $2 \times 10^{-5} \text{ N/m}^2$	Audibility range in nautical miles
200 or more	143	2
75 but less than 200	138	1.5
20 but less than 75	130	1
Less than 20	¹ 120	0.5
	² 115	
	³ 111	

¹ When the measured frequencies lie within the range 180–450 Hz.

² When the measured frequencies lie within the range 450–800 Hz.

³ When the measured frequencies lie within the range 800–2100 Hz.

(d) *Directional properties.* The sound pressure level of a directional whistle shall be not more than 4 dB below the sound pressure level, specified in paragraph (c) of this section, in any direc-

tion in the horizontal plane within ± 45 degrees of the forward axis. The sound pressure level of the whistle in any other direction in the horizontal plane shall not be more than 10 dB less than